

### **REMARKS**

This paper responds to the Office Action mailed on February 7, 2006.

Claims 46 and 48 are amended, claims 52-56 have been renumbered, no claims are canceled, and claim 58 is added; as a result, claims 45-58 are now pending in this application.

Applicant notes that in the previously filed amendment of December 22, 2005, claim 52 was listed twice. Applicant has amended the numbering of the claims to now follow in sequential order. Claims 45-58 are pending.

### **In the Specification**

The specification has been amended to update the priority data. No new matter has been added.

### **Information Disclosure Statement**

Applicant submitted a Supplemental Information Disclosure Statement and a 1449 Form on October 1, 2003. Applicant respectfully requests that an initialed copy of the 1449 Form be returned to Applicant's Representatives to indicate that the cited reference has been considered by the Examiner.

### **§102 Rejection of the Claims**

Claims 48-49 were rejected under 35 U.S.C. § 102(b) for anticipation by Marks et al. (U.S. 5,204,288). Applicant respectfully traverses.

Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897, 1908 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991).

Claim 48 presently recites: "A method of providing a material in a site between metal features on a wafer, comprising: performing a deposition of said material in said site; and plasma etching said material and a conductive material in the same general site used to perform said deposition, wherein said plasma etching further comprises etching generally simultaneously with

performing said deposition." In contrast, Marks discloses a method of providing an insulative material in a site between metal features.

The Office Action states:

Marks ... discloses a method of providing a material 20a, 20b in a site between metal features 14, 15 on a wafer 10 [Fig. 9] comprising the steps of: ... -plasma etching the material [col. 7, ln. 38] in the same general site used to perform the deposition, wherein the step of etching further comprises etching generally simultaneously with performing the deposition [col. 9, ln. 50].

The cited portion of Marks with respect to simultaneous etching and deposition recites:

In a variation on this embodiment when silicon oxide comprises insulation layer 20a, the vapor being deposited to form layer 20a may be mixed with an etchant... so that an in situ etch of the less dense silicon oxide sidewalls of layer 20a will occur during the deposition.

Applicant respectfully asserts that Marks does not disclose plasma etching of conductive material simultaneously with performing deposition. In contrast, Marks discloses plasma etching a specific insulative material, silicon oxide, while simultaneously depositing the insulative material.

For at least these reasons, Marks does not teach each element of claim 48, because Marks does not disclose a method of etching a conductive material in a site between metal features. As a result, Applicant respectfully requests withdrawal of the rejection of claim 48.

Claim 49 is a dependant claim based on claim 48. Claim 49 incorporates all elements of claim 48. As a result, Applicant respectfully requests removal of the rejection of claim 49.

### §103 Rejection of the Claims

Claims 45-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kurosawa (U.S. 4,371,407) in view of Marks et al. Applicant respectfully traverses.

*Regarding claims 45-47 and 53-56:*

With respect to claims 45-47 and 53-56, Applicant respectfully asserts that the Office Action has not sustained its burden of proof required for an obviousness rejection because the Office Action has not provided support that Kurosawa in view of Marks discloses each and every element recited in claims 45 and 46. The Office Action admits that Kurosawa does not suggest,

as recited in claims 45 and 46, "wherein said deposition occurs at a greater rate within said site than above said features." The Office Action states: "Applicant argued that Kurosawa does not suggest, 'deposition occurs at a greater rate...' The Examiner was aware the shortcoming of Kurosawa." (Office Action pg. 4). In support of the obviousness rejection of claims 45 and 46, the Office Action cites *In re Woodruff*, stating that "where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical." Applicant respectfully disagrees with this interpretation of *In re Woodruff*.

*In re Woodruff* deals with an obviousness rejection of a patent claim to a process for inhibiting the growth of fungi on refrigerated fresh fruits and vegetables by storing them in a specified modified atmosphere. An increase in carbon monoxide provided the inhibition of fungi growth. The *Woodruff* claims were found unpatentable over prior art McGill that disclosed increased levels of carbon monoxide in order to maintain fresh leafy and head vegetables for longer periods of time. Although the McGill patent only claimed a carbon monoxide concentration of 5%, and one of the *Woodruff* claims recited a 5%-25% carbon monoxide concentration, the *Woodruff* claim was found obvious in light of the McGill patent.

*Woodruff* stands for the proposition that where a patent claims an unexpected result over prior art only due to a change in chosen dimensions, then that claim is obvious compared to the prior art unless the patentee can prove that the change in chosen dimensions is critical. However, *Woodruff* is certainly distinguishable from the current subject matter.

First, *Woodruff* dealt with a situation where the patentee was claiming an unexpected result from something that had already been discovered. Raised concentrations of carbon monoxide had already been used in the prior art to maintain the freshness of fruits and vegetables. Reduction of the amount of fungi on the vegetables had already been accomplished by the prior art, though it may not have been known that fungi was the cause of vegetables deteriorating faster. The only difference over the prior art was an increase in the concentration of carbon monoxide. This is distinguishable from the current subject matter because the prior art did not encompass the benefit of performing a deposition of a material at a greater rate within the site. According to the Office Action the prior art only disclosed performing deposition of a

material and etching of a material concurrently. This does not encompass performing the deposition at a greater rate within the metal features as recited in claim 45.

Second, and most importantly, the current subject matter is distinguishable from Woodruff because the current subject matter doesn't disclose merely a mere dimension. The current subject matter recited in claim 45 recites a differing rate of material deposition between the region between metal features and the regions not between the metal features. The mere fact that Kurosawa discloses a film deposited at a rate of about 100 angstroms per minute is not sufficient to establish that the subject matter recited in claim 45 is a simple change in dimensions. The subject matter recited in claim 45 is an increase in the number of dimensions in specified areas. Thus, the Office Action has not sustained the burden of proof required to establish an obviousness rejection because the Office Action has not established that Kurosawa when viewed in light of Marks teaches each and every element of claim 45.

Claims 45-47 and 53-56 as presently stated include, either directly or through incorporation, a limitation that the deposition occurs at a greater rate within the site between metal features. As a result, Applicant respectfully requests withdrawal of the rejection off claims 45-47 and 53-56.

*Regarding claims 48-52:*

With respect to claims 48-52, Applicant respectfully asserts that the Office Action has not sustained its burden of proof required for an obviousness rejection because the Office Action has not provided support that Kurosawa in view of Marks discloses each and every element recited in claims 48-52. Claim 48 presently recites: "A method of providing a material in a site between metal features on a wafer, comprising: performing a deposition of said material in said site; and plasma etching said material and a conductive material in the same general site used to perform said deposition, wherein said plasma etching further comprises etching generally simultaneously with performing said deposition." In contrast, Marks apparently discloses a method of providing and/or etching an insulative material in a site between metal features. Kurosawa also apparently discloses a method of providing/etching an insulative material. Applicant cannot find in either Marks or Kurosawa any disclosure of plasma etching a conductive material simultaneously with performing a deposition. Thus, Applicant respectfully

requests withdrawal of the rejection of claim 48 because Marks and Kurosawa do not disclose simultaneous etching of a conductive material simultaneously with deposition. As a result, Applicant respectfully requests removal of the rejection of claim 48. Claims 49-52 are dependant claims that incorporate every limitation recited in claim 48. Claim 48 is believed allowable. As a result, Applicant respectfully requests removal of the rejection of claims 49-52.

### CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

THOMAS A. FIGURA ET AL.

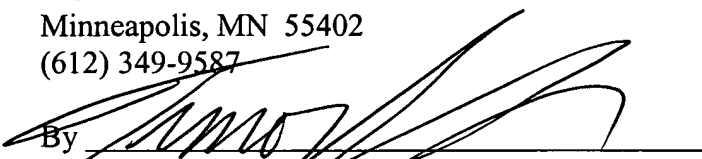
By their Representatives,

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Date

29 June '06

By



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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 29 day of June, 2006.

Name

KATE GANNON

Signature

